

## Advanced 3D Object Identification System, Phase II

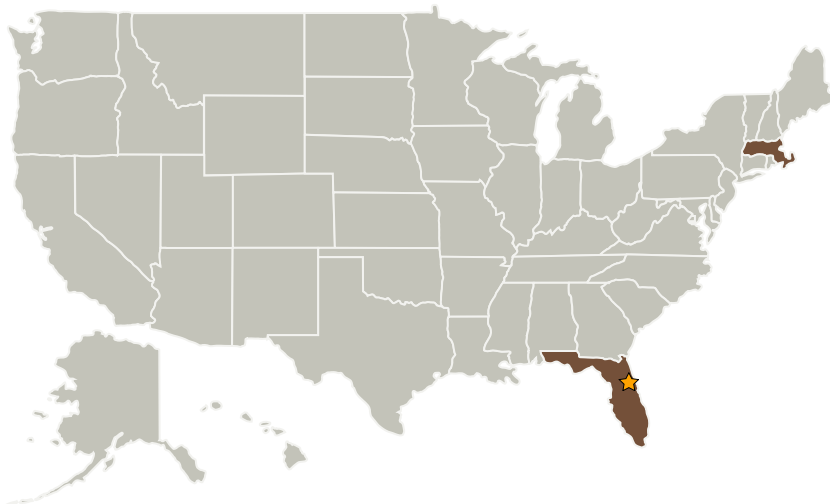
Completed Technology Project (2007 - 2009)



## Project Introduction

During the Phase I effort, OPTRA developed object detection, tracking, and identification algorithms and successfully tested these algorithms on computer-generated objects of various shapes and sizes and on sample real-world image sequences of a DeltaII booster separation. The algorithms currently identify six basic shapes (sphere, disk, cone, thin rectangle, tube, and cube) with better than 90% accuracy and estimate their size in three dimensions. Object shape and three dimensional size information can be determine using images from a single digital camera while two cameras are needed to provide three-dimensional trajectory and ground impact position information. While the Phase I showed the feasibility of the approach, work still needs to be done during the Phase II effort refining and expanding the detection, tracking, and identification algorithms to take into account the effect of noise, obscuration (smoke, clouds, etc), and viewing angle. Also during the Phase II, we plan develop a robust optical system using all commercial off-the-shelf (COTS) equipment and then test the system with several live outdoor tests.

## Primary U.S. Work Locations and Key Partners



Advanced 3D Object Identification System, Phase II

## Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Management	2
Technology Areas	2

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Kennedy Space Center (KSC)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## Advanced 3D Object Identification System, Phase II

Completed Technology Project (2007 - 2009)



Organizations Performing Work	Role	Type	Location
★ Kennedy Space Center(KSC)	Lead Organization	NASA Center	Kennedy Space Center, Florida
Optra, Inc.	Supporting Organization	Industry	Topsfield, Massachusetts

Primary U.S. Work Locations	
Florida	Massachusetts

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

## Technology Areas

**Primary:**

- TX17 Guidance, Navigation, and Control (GN&C)
  - └ TX17.1 Guidance and Targeting Algorithms
    - └ TX17.1.1 Guidance Algorithms